IN THE CLAIMS

Amend the claims as follows.

Claims 1-45. (Canceled)

46. (New) A method for identifying a substance having ion-channel modulating activity, the method comprising the steps of:

(i) exposing a SPASIC protein, which is associated with a membrane or cell surface, to a solution of the substance such as to allow interaction between the substance and the protein,

wherein the SPASIC protein (a) has proton gated cation channel activity, and (b) comprises an amino acid sequence having at least 90% sequence identity with the full-length sequence of SEQ ID NO:2; and,

(ii) measuring changes in the proton-gated cation channel activity in response to said interaction; a change in said activity being indicative that the substance has ion-channel modulating activity.

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47. (New) A method as claimed in claim 46 wherein a change in said activity is indicative that the substance is a potential analgesic; an neuromodulatory agent; an anti-inflammatory agent; or an agent that regulates neurotransmitter release or neuronal excitability

48. (New) A method according to claim 46 wherein the SPASIC protein reversibly mediates a cation current in response to an H+ stimulus, the cation

current having (i) a rapid phase lasting less then 500 ms, and (ii) a sustained phase continuing for the duration of the H+ stimulus.

49. (New) A method according to claim 46 wherein the SPASIC protein comprises amino acid sequence of SEQ ID NO:2.

50. (New) A method according to claim 46 wherein the SPASIC protein comprises a fragment of the amino acid sequence SEQ ID NO:2.

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51. (New) A method according to claim 46 for screening for potential analgesics; neuromodulatory agents; anti-inflammatory agents and agents that regulate neurotransmitter release or neuronal excitability.

52. (New) An isolated SPASIC protein which

(i) has H+ gated cation channel activity, and;

(ii) comprises an amino acid sequence having at least 90% sequence identity with the full length sequence of SEQ ID NO:2.

53. (New) An isolated SPASIC protein according to claim 52 comprising amino acid sequence SEQ ID NO:2.

54. (New) An isolated SPASIC protein according to claim 52 which reversibly mediates a cation current in response to a H+ stimulus, the current having (i) a rapid phase lasting less then 500 ms, and (ii) a sustained phase continuing for the duration of the H+ stimulus.

55. (New) An isolated nucleic acid comprising a polynucleotide sequence encoding the protein of claim 52.

56. (New) A nucleic acid according to claim 55 wherein the polynucleotide sequence comprises bases 292-1909 of Seq ID No 1 or is degeneratively equivalent thereto.

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57. (New) A nucleic acid according to claim 55 which hybridizes with the complement of the nucleic acid of SEQ ID NO:1 under high stringency conditions, said conditions being hybridization at 65°C in 0.25M Na_2HPO_4, pH 7.2, 6.5% SDS, 10% dextran sulfate, and a final wash at 60°C in 0.1x SSC, 0.1% SDS.

58. (New) An isolated nucleic acid which is the complement of the nucleic acid of claim 55.

59. (New) An isolated nucleic acid molecule comprising a contiguous polynucleotide sequence of at least 16 bases of SEQ ID No 1, or the complement of SEQ ID NO:1.

60. (New) An isolated nucleic acid molecule according to claim 59 comprising a contiguous polynucleotide sequence of at least 30 bases of SEQ ID NO: 1 or the complement of SEQ ID NO:1.

61. (New) A nucleic acid molecule as according to claim 59 wherein the contiguous polynucleotide sequence hybridises under stringent conditions to SEQ ID NO: 1 and one or more of SEQ ID NO:3, SEQ ID NO: 12 and SEQ ID NO: 14;

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said conditions being hybridization at 65°C in 0.25M Na_2HPO_4, pH 7.2, 6.5% SDS, 10% dextran sulfate, and a final wash at 60°C in 0.1x SSC, 0.1% SDS

62. (New) A nucleic acid molecule according to claim 59 wherein the contiguous polynucleotide sequence hybridises under stringent conditions to SEQ ID NO: 1 but does not hybridise to SEQ ID NO:3, SEQ ID NO: 12 or SEQ ID NO: 14 under said conditions,

said conditions being hybridization at 65°C in 0.25M Na_2HPO_4, pH 7.2, 6.5% SDS, 10% dextran sulfate, and a final wash at 60°C in 0.1x SSC, 0.1% SDS.

63. (New) An isolated nucleic acid molecule according to claim 59 which is selected from the group consisting of SEQ ID NOS 4, 5, 6, 7, 8, and 9.

64. (New) A recombinant vector comprising the nucleic acid of claim 55.

65. (New) A vector as claimed in claim 64 wherein the nucleic acid is operably linked to a promoter or other regulatory element for transcription in a host cell

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66. (New) A vector as claimed in claim 64 which is suitable for expression of the nucleic acid in a eucaryotic cell.

67. (New) A host cell containing a heterologous nucleic acid of claim 55.

68. (New) A host cell transformed with the vector of claim 64.

69. (New) A host cell comprising a heterologous protein of claim 52.